

WHAT IS CLAIMED IS:

09985838-110601

1. A multi-layered disc comprising a plurality of recording layers laminated with each other in a direction of a normal line of
5 said recording layers, in each of which an information data recording area for recording information data and a control data recording area for recording control data to control an operation of recording and/or reproducing the information data are disposed on a same plane, the control data being recorded by a CAV (Constant
10 Angular Velocity) method over a plurality of tracks in said control data recording area,

said control data recording area in each of said recording layers being disposed such that said control data recording area of one of said recording layers is not superimposed with said control
15 data recording area of another of said recording layers in the direction of the normal line.

2. A multi-layered disc comprising a plurality of recording layers laminated with each other in a direction of a normal line of
20 said recording layers, in each of which an information data recording area for recording information data and a control data recording area for recording control data to control an operation of recording and/or reproducing the information data are disposed on a same plane, the control data being recorded by a CAV method over a
25 plurality of tracks in said control data recording area,

the control data being recorded in only one of said recording

layers.

3. A multi-layered disc according to claim 1, wherein the control data are recorded as a PEP (Phase Encoded Part) signal.

5

4. A multi-layered disc according to claim 2, wherein the control data are recorded as a PEP signal.

5. A multi-layered disc according to claim 1, further comprising
10 a second control data recording area for recording a second control data to control the operation of recording and/or reproducing the information data in said recording layers.

6. A multi-layered disc according to claim 2, further comprising
15 a second control data recording area for recording a second control data to control the operation of recording and/or reproducing the information data in said recording layers.

7. A multi-layered disc reproducing apparatus for reproducing
20 information data recorded on a multi-layered disc comprising a plurality of recording layers laminated with each other in a direction of a normal line of said recording layers, in each of which an information data recording area for recording the information data and a control data recording area for recording control data to
25 control an operation of recording and/or reproducing the information data are disposed on a same plane, the control data being recorded

by a CAV method over a plurality of tracks in said control data recording area, said control data recording area in each of said recording layers being disposed such that said control data recording area of one of said recording layers is not superimposed with said control data recording area of another of said recording layers in the direction of the normal line, said multi-layered disc reproducing apparatus comprising:

a detection signal outputting device for outputting a detection signal, which carries the control data in said control data record area, on the basis of a reflected light obtained by an irradiation of a reading light onto said control data recording area;

a control data reproducing device for reproducing the control data on the basis of the detection signal outputted from said detection signal outputting device; and

an information data reproduction controlling device for reproducing the information data recorded in said information data recording area on the basis of the reproduced control data.

8. A multi-layered disc reproducing apparatus for reproducing information data recorded on a multi-layered disc comprising a plurality of recording layers laminated with each other in a direction of a normal line of said recording layers, in each of which an information data recording area for recording the information data and a control data recording area for recording control data to control an operation of recording and/or reproducing the information data are disposed on a same plane, the control data being recorded

by a CAV method over a plurality of tracks in said control data recording area, the control data being recorded in only one of said recording layers, said multi-layered disc reproducing apparatus comprising:

5 a detection signal outputting device for outputting a detection signal, which carries the control data in said control data record area, on the basis of a reflected light obtained by an irradiation of a reading light onto said control data recording area;

10 a control data reproducing device for reproducing the control data on the basis of the detection signal outputted from said detection signal outputting device; and

 an information data reproduction controlling device for reproducing the information data recorded in said information data recording area on the basis of the reproduced control data.

15

9. A multi-layered disc reproducing apparatus according to claim 7, wherein said control data reproducing apparatus comprises:

 a low pass filter for extracting a control data signal based on the control data from the detection signal; and

20 a control data decoder for generating the control data by the control data signal extracted by said low pass filter.

10. A multi-layered disc reproducing apparatus according to claim 8, wherein said control data reproducing apparatus comprises:

25 a low pass filter for extracting a control data signal based on the control data from the detection signal; and

a control data decoder for generating the control data by the control data signal extracted by said low pass filter.

11. A multi-layered disc reproducing apparatus according to
5 claim 9, wherein said low pass filter has a cut-off frequency, which is a double frequency of a repetition frequency of a longest pit carrying the control data, and an attenuation characteristic, which attenuates the detection signal from a standard level of said low pass filter by the cut-off frequency.

10

12. A multi-layered disc reproducing apparatus according to
claim 10, wherein said low pass filter has a cut-off frequency, which is a double frequency of a repetition frequency of a longest pit carrying the control data, and an attenuation characteristic, which
15 attenuates the detection signal from a standard level of said low pass filter by the cut-off frequency.

13. A multi-layered disc reproducing apparatus according to
claim 9, wherein said low pass filter has an attenuation
20 characteristic which attenuates more than 40 dB from a standard level of said low pass filter at a repetition frequency of a SFP (Standard Formatted Part) signal having a longest pit.

14. A multi-layered disc reproducing apparatus according to
25 claim 10, wherein said low pass filter has an attenuation characteristic which attenuates more than 40 dB from a standard

09985838.110601

level of said low pass filter at a repetition frequency of a SFP signal having a longest pit.

09985838 . 110601